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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/075,896 | 02/12/2002 | Stanley S. Toncich | UTL 00111 | 9303 |

7590 10/08/2003
Kyocera Wireless Corp:
Attn: Patent Department
PO Box 928289
San Diego, CA 92192-8289

EXAMINER

WIMER, MICHAEL C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2821

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,896

Applicant(s)

TONCICH, STANLEY S.

Examiner

Michael C. Wimer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☒ Claim(s) 4 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romanofsky (6292143).

Regarding Claim 1, Romanofsky shows and teaches a tunable antenna matching circuit comprising a ferro-electric tunable component 16 configured to be coupled to an antenna 18,14,12; a matching circuit comprising the ferro-electric tunable component; a control line 24A operably coupled to the component; a control source 24 electrically coupled to the control line 24A, and the source is configured to transmit a control signal (col. 6, last paragraph) on the line; and wherein the component 16 is responsive to the control signal and adjusts the impedance of the matching circuit as claimed. Romanofsky teaches in Table 1, in col. 7, the relative permittivity of the component 16 is varied via the control signal of the source 24 and thus the overall effective relative permittivity of the antenna is changed, and in col. 7, fourth paragraph, likewise, the input impedance of the radiator 18 is changed by tuning of the component 16. It would have been obvious to the skilled artisan in the antenna art that the control of the

voltage across the ferro-electric component 16 and 12 adjusts the impedance of the matching circuit (i.e., the component 16).

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romanofsky as applied to Claim 1 above, and further in view of Yandrofski et al. (5589845).

Regarding Claims 2 and 3, Yandrofski et al. show in Figures 23 and 24 a ferro-electric capacitor 141 used as a matching circuit and comprising a ferro-electric tunable component 136 coupled to an antenna 130. It would have been obvious to the skilled artisan to employ the matching circuit/capacitor of Yandrofski et al. in the Romanofsky antenna for the purpose of providing a tunable antenna matching circuit.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romanofsky in view of Vanatta et al. (5649306).

As noted above, Romanofsky shows the claimed structure and it was shown to be obvious to the skilled artisan that the ferro-electric component adjusts impedance of the matching circuit at the input of the antenna radiator 18.

Romanofsky teaches and suggests at col. 2, lines 16, certain applications for the antenna disclosed. Thus, Vanatta et al. are cited as resolving the level of ordinary skill in the antenna art and as evidence of obviousness, and teach a patch antenna 59 (Fig. 3) used in a wireless communication device, along with a battery 57, a transceiver 50 and a user interface (e.g., keypad). It would have

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been obvious to the skilled artisan to employ the combination hand-held transceiver of Vanatta et al. along with the tunable antenna of Romanofsky.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romanofsky in view of Vanatta et al. as applied to Claim 5 above, and further in view of Yandrofski et al.

Regarding claims 6 and 7, Yandrofski et al. show in Figures 23 and 24 a ferro-electric capacitor 141 used as a matching circuit and comprising a ferro-electric tunable component 136 coupled to an antenna 130. It would have been obvious to the skilled artisan to employ the matching circuit/capacitor of Yandrofski et al. in the Romanofsky/Vanatta et al antenna and wireless communication device for the purpose of providing a tunable antenna matching circuit.

Allowable Subject Matter

6. Claims 4 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wimer whose telephone number is (703) 305-3555. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K. Wong can be reached on (703) 308-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Michael C. Wimer
Primary Examiner
Art Unit 2821

MCW
09/08/03